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Claims

1.   A method of aligning Transmission Time Intervals of physical channels in the uplink and downlink directions of a bidirectional radio communication system, the method comprising:

measuring or estimating the response processing delay at a user terminal;

delaying the Transmission Time Intervals of an uplink physical channel with respect to a corresponding downlink physical channel or channels by an amount dependent upon the measurement or estimate.

2.   A method according to claim 1, wherein said bidirectional radio communication system is a WCDMA system.

3.   A method according to claim 1 or 2, wherein the amount by which the Transmission Time Intervals (TTIs) of the uplink physical channel are delayed is the minimum number of radio frame time intervals required to exceed the response processing delay.

4.   A method according to any one of the preceding claims, wherein said data is data which generates an automatic response on the part of the user terminal.

5.   A method according to claim 4, wherein said response contains an acknowledgement to the sender of the data.

6.   A method according to any one of the preceding claims, wherein the user terminal measures its response processing delay and computes the amount of delay to be applied to uplink Transmission Time Intervals based upon that measurement, and signals that delay amount to the Radio Access Network of the WCDMA system.

7.   A method according to any one of claims 1 to 5, wherein the response processing delay is measured by the user terminal and is transmitted to the Radio Access Network, and the Radio Access Network determines an appropriate delay

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amount based upon the received measurement, and sends the delay amount to the user terminal.

8.   A method according to any one of claims 1 to 5, wherein the response processing delay or an uplink Transmission Time Interval delay amount is pre-programmed into a memory of the user terminal.

9.   A method according to claim 8, wherein the response processing delay or an uplink Transmission Time Interval delay amount is sent from the user terminal to the Radio Access Network.

10.   A method according to claim 7 or 8, wherein the Radio Access Network uses the received response processing delay or an uplink Transmission Time Interval delay amount to determine the delay amount for the said user terminal and, optionally, for other user terminals communicating with the Radio Access Network.

11.   A user terminal for use with a bidirectional radio communication system, the terminal comprising means for delaying the Transmission Time Intervals of an uplink physical channel with respect to those of a corresponding downlink physical channel or channels by an amount dependent upon a measurement or estimate of the response processing delay of the terminal.

12.   A terminal according to claim 11 and comprising means for measuring the response processing delay or a memory for storing a predefined response processing delay or delay amount.

13.   A Radio Network Controller for use in a Radio Access Network of a WCDMA system, the Controller comprising means for processing uplink physical channels taking into account delays, relative to the corresponding downlink physical channels, in the Transmission Time Intervals introduced by the sending user terminals based upon respective measures or estimates of the user terminal processing powers.

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14.   A method of controlling the broadcast power levels at a node of a bidirectional communication system, the method comprising sending power control signals to said node from a peer node at regular intervals on an uplink channel, the uplink and downlink channels being synchronised to ensure correct correlation between the power control signals and the respective broadcast power levels, the power control signals being delayed with respect to the downlink signal by an amount dependent upon the response processing delay at said peer node.